

Wildlife Express

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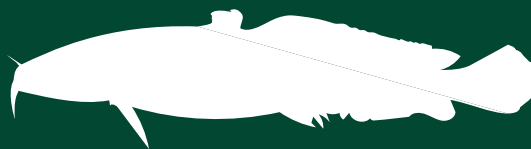


BURBOT

The Burbot photo CCBY Idaho Fish and Game

inside

A **Cod** in Idaho?
Where does this fish live?
What does this fish taste like?



idfg.idaho.gov

Do YOU know ...

that a species of cod lives in **Idaho?**

It's true! Burbot are the only freshwater cod species in North America. Burbot may be found living in the chilly waters around the northern parts of the globe. In Idaho, they are only native to the Kootenai River system.

Burbot might look a bit strange to some people. They do not look like trout. Burbot have a long body with a flattened head. The long fins on the top and bottom of their bodies and round tail fins give them an eel-like appearance. Their colors are a mottled mix of brown and yellowish-olive. The skin has the appearance of being smooth, but there are tiny embedded scales. They even have a fish goatee! A single "whisker" or barbel is found on the chin.

Something that sets them apart from many fish is that they are most active at night. They are nocturnal! During the day, they hang out in cold, deep, slow-moving pools. At night, they venture out to look for food in shallower waters.

Burbot are predators. In Idaho, some people even call them "Kootenai Leopards" because of their colors and feeding habits! They use their long chin barbel to probe along the river bottom for food.

Young burbot eat zooplankton or aquatic insects. With their large mouths, strong jaws

and inward slanting teeth, it is difficult for something to escape the grasp of burbot. Adults eat crayfish and fish. They will even eat other burbot!

Burbot do things a bit differently when it comes to spawning or laying their eggs. Burbot spawn in the winter! Some of the burbot that spawn in Idaho migrate almost 75 miles from waters in Canada. They spawn in the Kootenai River and its tributaries. Spawning may occur from December to the end of March, with most spawning happening in mid-February to mid-March. Burbot migrate to shallow areas and form "spawning balls." They do not build nests. Males and females swim around each other and release their eggs and sperm. The eggs are fertilized in the water and drift down to the river bottom to incubate. Females release a lot of eggs. Depending on the size of the female, anywhere from 60,000 to over 3 million eggs are produced. The eggs are very small – only about 1 millimeter in diameter, which is about the size of a grain of sand! When the eggs will hatch depends on the temperature of the water. The colder the water, the longer it takes for the eggs to develop and then hatch.

Even though there are lots of eggs released, that does not mean the river will be overrun with burbot. Some eggs may not get fertilized before they settle to the river bottom. Other eggs will be eaten or may not survive. The burbot that do survive will be ready to spawn when they are three to four years old. They live for eight to ten years in the Kootenai River but much longer in some other parts of the world.



Burbot are so different from the trout most of us are used to finding in Idaho's waters.

They are a fascinating fish!

Burbot

A Conservation Success Story

Twenty years ago it was hard to find burbot in Idaho. In 2004, it was estimated that only 50 fish remained in the entire Kootenai River! Many people thought burbot were too important to let them disappear. It took an international and multi-state effort to save them. Idaho Fish and Game, the Kootenai Tribe of Idaho, and fisheries biologists from Canada and Montana all worked together.

Research began in the 1990s to learn about burbot, and fishing was stopped in 1992 in the United States when burbot were nearly gone. Researchers hoped to gain knowledge about burbot habitats and where they spawned. They were also curious about the ages of the fish in the river. If all the fish were the same age, it meant something was wrong. There should be a mix of ages.

To learn about the burbot, hoop nets were placed in the river from southern British Colombia, Canada to the Idaho-Montana border. The nets trapped burbot without harming them. Burbot were placed in holding bins on boats. They were weighed, measured and checked to see if they had a PIT tag. A PIT tag is what many people put in their pets so they can be reunited with their owners if lost. Each tag is the size of a grain of rice and each one has a unique number. Researchers would be able to see how far burbot traveled when they were recaptured. If no PIT tag was found, one would be inserted into the fish using a needle.



Some fish had ultrasonic tags placed in their abdomens. Fish were put to sleep for about 15 to 20 minutes for this small surgery. Once the fish recovered, they were released back into the river. The tag allowed the researchers to track the fish's movements through the river for five years. They could see everywhere the fish went and how long they stayed in one area.

Researchers learned many things from their hard work. They learned that burbot were not very successful at spawning naturally. This may be because of changes in the water temperature from human activities. They also learned that hatchery-raised fish were surviving and trying to reproduce. But the hatchery would need to continue producing fish for a while to ensure the burbot population continued to grow.

With all the partners working together, burbot rebounded. In 2019, the team met its restoration targets! There were enough burbot to allow fishing again. Partners will continue to monitor burbot to ensure they continue to be a part of the Kootenai River system.



In 2004, the Kootenai Tribe of Idaho began operating a special burbot hatchery.

They took spawning burbot from Canada and raised the fish's eggs in the hatchery. Young burbot were then released into the river. Fish were also genetically tested. A small piece of the dorsal fin (fin on the back) was clipped off. This

tiny piece of fin holds a lot of information. Researchers

could tell the gender and age of the fish. They could tell if the

fish was born in the wild or raised in the hatchery. They could even determine when, where and how old a hatchery fish was when released.

winter fishing

Winter Fishing for Burbot? You Bet!

Winter might not seem like the ideal time to go fishing to some folks. It can be a bit cold, but winter is a great time to go fishing, especially for burbot.

The largest number of burbot found in Idaho is between mid-February to mid-March. This is when spawning is at its peak in the Kootenai River. Because of their nocturnal lifestyle, it can be a bit tricky to locate burbot. You should try fishing shallow flats, five to 15 feet deep, at dusk or during the night. Places where smaller streams flow into the mainstem of the Kootenai River are great places to wet your line.

If you don't want to head out at night, try fishing holes 40 feet deep or deeper. Burbot will be resting in these deep holes during the day. You might also want to try ice fishing for burbot on Bonner Lake in Boundary County.

When it comes to bait, you should pick something meaty. Remember, burbot are predators. Worms and cut shrimp or fish will work best. Put enough weight on your line to get the bait down to the bottom of the river. Move your line up and down a bit to get the fish's attention. You can also just sit back, relax and wait for the tip of your rod to start bouncing from a burbot on your line!

One of the most important things to remember when fishing in the winter is to stay warm and dress for the weather. Bring a chair to keep your body off of the cold ground. Dress in layers so you can take off clothes if you get too warm and put a layer back on when you get chilly. The outside layer should be waterproof. Wear warm boots, a hat and gloves. It is also a good idea to bring along a second pair of socks and gloves if your first pair gets wet. Nothing makes you colder faster than wet clothing!

Don't forget snacks, water and warm drinks, like hot chocolate. Your body will need a good supply of fuel to keep you warm. Also consider starting a campfire on the shoreline to give you light and warmth while you fish!

If you are prepared, fishing during the winter can be fun. It's an exciting adventure to share with family and friends!



> Burbot photo CCBY
Idaho Fish and Game
Kamen Nelson with Burbot CCBY
Idaho Fish and Game

yummy BURBOT!

Burbot is delicious! The white, mild meat can be cooked many different ways. You can substitute burbot for any recipe that uses cod. Here are a few recipes to try.

Burbot illustration CCBY by Nancy Jasper, Idaho Fish and Game
Lobster photo CCBY
Idaho Fish and Game

Poor Man's Lobster

Ingredients

- burbot
- 1/2 lemon
- 1 cup sugar
- lemon pepper, dill seed, melted butter (for serving)



Instructions

1. Fill a large pot about 1/2 to 3/4 full of water and bring to a boil.
2. Add in half a lemon, cut into 2 pieces and the sugar. Stir until the sugar dissolves.
3. Allow the mixture to come back to a boil for a couple minutes.
4. Cut the fish into about 1-inch chunks and add to the boiling water. Do not stir!
5. When the fish begin bobbing and float to the top, strain them out and set on a paper towel or wire rack.
6. Sprinkle with lemon, lemon pepper and/or dill seed (optional). Dip in butter- serve warm.

Taken from: <https://kentrollins.com/poor-mans-lobster/>

Finnish Burbot Soup

Serving Size: 4 servings

Ingredients

- 1 large onion, diced
- 1/2 leek, diced
- 1 - 2 medium carrots, sliced
- 4 tablespoons salted butter
- 6 to 8 potatoes, peeled and cut into chunks
- 2 1/2 cups water
- 15 whole allspice berries
- 3 bay leaves
- 2 teaspoons salt
- 1 cup heavy cream
- 3 to 4 pounds burbot, skinned and cut into medium sized pieces
- 2 1/2 tablespoons chopped dill

Directions

1. In a large pot, melt butter over medium heat.
2. Add the onions, leeks and carrots. Sauté, stirring occasionally, until the onions are softened but not browned.
3. Add water, spices and potatoes. Bring to a boil. Cook the potatoes about 15 minutes or until fork tender.
4. Add cream and the fish pieces. Place a lid over the pot and let the soup simmer at low heat for approximately 5 minutes.
5. Add the chopped dill.

Taken from: <https://www.foodrepublic.com/recipes/finnish-burbot-soup-recipe/>

Burbot Fish and Shrimp Curry with Lime and Coconut Milk

Ingredients

- 3 lb. burbot fillet
- 5 oz. peeled shrimp
- 1 chopped onion
- 1 chopped garlic clove
- 3-5 oz. minced ginger
- 5 fl. oz. milk
- 5 fl. oz. coconut milk
- 1 tsp. curry powder
- 1 fl. oz. Nuoc mam
- 1 Tbsp. sugar
- 2 limes
- 1 Tbsp. olive oil
- Salt

Directions

1. Heat the frying pan to 2/3 of the maximum power of your stove and add olive oil.
2. Brown the onion, garlic, ginger and curry in pan.
3. Add the burbot, milk, sugar and Nuoc mam. Cover the pan and simmer on low heat for 10 minutes.
4. Add the coconut milk and shrimp and simmer for 5 more minutes.
5. Serve with lime wedges and rice.

Taken from: Burbot Fish and Shrimp Curry with Lime and Coconut Milk (cristelusa.com)

more **FREAKY** fish



BE OUTSIDE
IDAHO CHILDREN IN NATURE



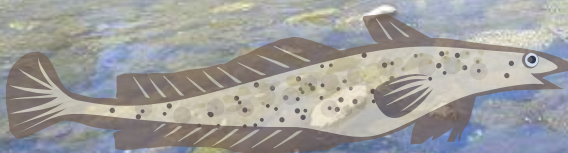
Burbot are pretty special fish, but Idaho also has some other unique fishes. Some are more difficult to find, but others can be found in just about every stream in Idaho.

A fish you might have a hard time finding is the Pacific lamprey. Pacific lamprey are anadromous. They travel between Idaho and the Pacific Ocean. They may be found in the Snake and Clearwater Rivers. Lamprey are pretty different from other fish. They look more like a snake or eel. They have long thin bodies, and their skeletons are made of cartilage, not bone. Cartilage is what is found in your ears and the tip of your nose. Lamprey do not have jaws like other fish. Instead, they have a round mouth that looks like a suction cup with teeth. As adults, Pacific lamprey are parasitic; they live off of other animals! They use their suction cup mouth to attach to fish in the ocean. They chew through the skin with their special teeth and suck the juices out of the fish. Lamprey usually drop off before they kill the fish, but they do leave a scar!

The longest-lived and largest fish in Idaho is the white sturgeon. They might live for 100 years and grow to be almost as long as a fishing boat. They are huge! White sturgeon live in the Snake, Salmon and Kootenai Rivers in Idaho. They have something in common with lamprey and burbot. Like lamprey, sturgeon have skeletons made of cartilage. They do not have scales. Sturgeon are covered by a thick skin that feels like sandpaper. Their sides are protected by five rows of bony plates, called scutes. Like burbot, sturgeon have barbels to help them find food. The mouth on sturgeon is located at the bottom of the head. They stick out their lips and suck food up like a vacuum!

Have you ever been looking into a stream and thought you saw a rock hop? What you may have been looking at was another special fish in Idaho called sculpin. These little fish look a bit like rocks, and they do hop! At least, it looks like they are hopping. Sculpin are unique, because they don't have scales or swim bladders. Swim bladders help fish float and move up and down in the water. Since sculpin don't have swim bladders, they spend almost all of their time on the bottoms of rivers, streams and lakes. Idaho's sculpin are small. A big sculpin would be about six inches in length. Sculpin are an important link in aquatic food chains; they are food for larger fish.

See, Idaho has many unique and special fish. Do some research and discover other strange fish that live in Idaho.



Rocks photo and Burbot illustration CCBY by Nancy Jasper, Idaho Fish and Game

In the Winter Night

If you have never experienced being outside during a winter evening, you are missing something special. The perfect time to experience a winter night is while fishing for burbot. Even if you decide that night fishing is not for you, ask your family if you can bundle up and drive far away from city lights and sounds. You will not be disappointed.

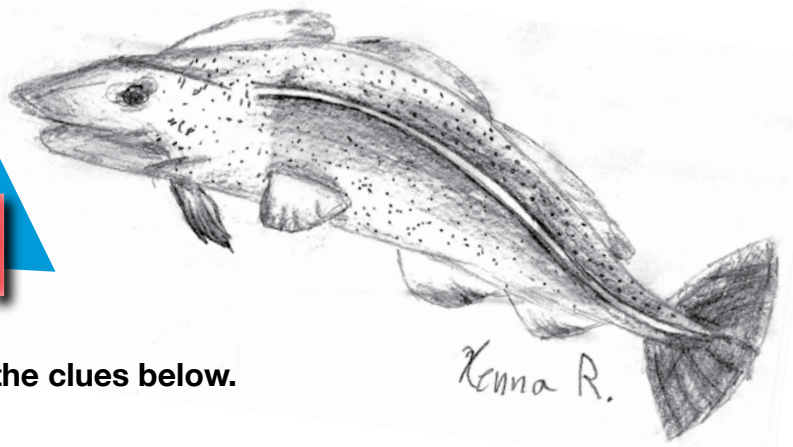
During the winter, the evening sky is crisp and clear. There is no smoke from fires to obstruct viewing night objects. The stars stand out and satellites can be seen zooming across the sky. You do not need a fancy telescope to see amazing sights. A set of binoculars will reveal moon craters and far off marvels not seen by the naked eye. January 17th is the first full moon of 2022. The first full moon of the year is known as the wolf moon in many cultures. Who knows? You may even hear a wolf howl in the distance.

Night also offers us the opportunity to hear sounds that are often missed during the day. Winter puts some animals and insects, like crickets, to sleep. Their chirping no longer getting in the way of hearing softer and often overlooked sounds. The bubbling of a stream stands out. Every splash and turn of the water begs to be heard. The rustle of trees sing in the wind. You can even hear snowflakes touch the ground with a gentle whisper.

You do not need to be out for a long time to experience the wonders of a winter night. Just five minutes of quiet observation can reveal a whole new world.



BURBOT WORD SEARCH



Fill in the missing letters to find answers to the clues below.
Find the completed words in the puzzle.

- B _ R B _ _ Another name for "whisker."
C _ _ D W _ _ ER Burbot are found in this.
_ E L _ C _ O U _ How burbot taste.
_ I _ H I N _ This is a fun burbot activity.
F R _ _ H W _ T _ _ C _ D Burbot are the only one of these in North America.
H _ T _ H _ R _ A place that raises fish.
K _ _ T E _ A _ R _ V _ _ The place where burbot are found in Idaho.
_ A _ G E M O _ T H Burbot use this to catch prey.
M _ G _ A _ _ Moving from one place to another.
M _ T _ L _ D This means a splattering of colors.
_ O C _ U R _ A _ This means active at night.
P _ E D _ T _ _ An animal that eats other animals.
R E _ T O _ E D Burbot are now considered this in the Kootenai River.
R _ V _ _ B O _ _ O _ Burbot like to spend time here.
_ L A _ T _ _ G T _ _ T H These keep prey from escaping.
S _ A W _ I N _ B _ L _ S How burbot lay their eggs.
S T _ O _ _ J _ W This helps burbot hold their prey.
S T _ _ I _ S People did these to learn about burbot.
U _ I _ U E This means different from others.
W _ N T _ _ When burbot lay their eggs.

W	T	B	T	S	R	E	T	X	H	W	P	J	X	F	N	V	W	N	D
E	N	F	L	K	H	T	U	O	M	E	G	R	A	L	D	O	E	S	E
P	C	P	K	Z	X	B	O	V	Q	V	J	U	Q	S	L	D	D	E	L
S	L	L	A	B	G	N	I	N	W	A	P	S	Y	I	Z	R	E	I	I
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Z	U	U	W	R	I	V	E	R	B	O	T	T	O	M	L	K	P	H	M

Fish Illustration CCBY Kenna R. for Idaho Fish and Game,
a 6th grade student at Taft Elementary School, Boise

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WE WOULD LIKE TO HEAR FROM YOU!

If you have a letter, poem or question for Wildlife Express,
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